REMARKS

Claims 1-15 remain active in the application.

Claims 1 stands rejected under 35 U.S.C. 102(b) as being anticipated by Harringdon (U.P. 6,642,467).

Applicants traverse the aforementioned rejection for the following reasons:

Claim 1 of the present application recites:

A micro-electromechanical switch comprising:

at least one contact electrode; and

a deflecting beam, said deflecting beam contacting said at least one electrode, wherein **a compressible elastically deformable film or coating is affixed to either said deflecting beam or on at least one of said contact electrodes**."

1) As stated in the above claim 1, Applicants teach a compressible, elastically deformable film or coating affixed on at least one said contact electrode. A contact electrode is, by definition, an electrically conductive material that, upon coming into contact with a complementary electrode, completes the electrical circuit. For further clarification, Applicants have extracted from the Encyclopedic Dictionary of Electronic and Nuclear Engineering, published by Prentice Hall, the definition of an electrode. The Encyclopedia defines this term as being "a conductor, but not necessarily a metal, through which a current enters or leaves one material or medium and enters another".

2) Applicants teach a micro-electromechanical switch, which is characterized, among others, as being capable of closing an electrical circuit in its ON state. Applicants achieve this by way of a compressible, elastically deformable film which, by way of the contact

electrode, becomes an integral part of the electrical path, and thus must be itself conductive (see the definition in the above paragraph). A non-conductive film clearly teaches away from the basic concept of a switch.

Farringdon teaches away from what Applicants deem to be their invention by describing a switch having two contacts affixed to two deformable elements, respectively. These deformable elements are made of compressible material such as foam. When the foam is compressed, the contacts come into contact and turn the switch on. Accordingly, Farringdon explicitly <u>separates the contacts from the compressible material</u>. The contact portions consist of "textile fastener components" which are rigid. <u>The compressible material sits to either side and performs no electrical role whatsoever</u>. This is a fundamental distinction from Farringdon's teaching to the Applicant's. Moving the compressible material to one of the contacts would render the Farringdon's switch inoperative, with the foam blocking the ability of the contacts to make contact. Thus, following the line of argument submitted by the Examiner, if one were to incorporate the "compressible material" taught by Farringdon into the micro-electromechanical switch taught by the Applicants, one would end with an inoperative switching device altogether.

Moreover, the Applicants require for the switch to operate as intended a "compressible, elastically deformable" AND "conductive" material. The properties of such material must also include selected mechanical properties, such as mechanical robustness for repeated contact and removal of the contact, all of which are necessitated for making and operating a switch. To this effect, Applicants make explicit mention of sample materials, i.e., Parylene, ACF (used in LCD displays) and etched micro-mechanical springs. None of these considerations are described nor suggested by Farringdon in his "garment switch".

Finally, Applicants submit that their teaching extends further to integrating the compressible element onto the contact itself, which implies that the element is conductive and part of the electrical circuit. It also teaches the presence of a highly non-linear

restorative force which becomes large only when the switch is near to being fully closed (i.e., turns ON), allowing the switch to be actuated by a small applied voltage. This combination of mechanical and electrical properties is not taught nor suggested by Farringdon who states in column 9, line 47 – 52. "The switch device 140 may be incorporated into the garment simply by attaching the seam region to the garment by stitching, gluing or another suitable fastening method. In all the above described arrangements/ embodiments, *the switch contacts (whether in the form of eyelets, press fastener halves or other textile fastener device)* ... The Examiner is respectfully invited to compare Applicants' switch contact to Farringdon' switch contact.

Accordingly, Applicants believe that Farringdon does not anticipate claim 1, and respectfully request that the rejection of claim 1 under 35 U.S.C. 102(b) be reconsidered and withdrawn.

Claims 1-6 and 8-14 stand rejected under 35 U.S.C. 103 as being unpatentable over Huang in view of Farringdon and Mikheeva.

As previously stated, Applicants teach a compressible material on the electrode itself as being electrically conductive and an active part of the circuit when the contacts close and the switch is in its ON state. The conductive properties of the compressible material are clearly taught by Applicants, who also extend their invention to include the combination of a "switch" with the "on at least one of said contact electrodes."

Now, The Office Action states in page 5, that "it would have been obvious to one having ordinary skill in the art at the time of this invention to modify HUANG to include a compressible material such as rubber ..., to provide a bias means for the contacts." The Office Action assumes that the compressible material serves merely as a non-linear restorative force and ignores the fact that it is an integral part of at least one electrode and thus, <u>is and must be electrically conductive</u>. Applicants submit that it is known that rubber is an insulator and will not work in a micro electromechanical switch altogether.

Thus, what the Office Action deems to be an obvious modification would only result in a non-functional, non operative switch.

Applicants further contend that HUANG teaching addresses a deformable beam that allows two contacts to close, which is known to this class of MEMs switches. HUANG's teaching is limited to linking the switch to the rest of a circuit via conductive vias. Applicants submit that this teaching is irrelevant to their own teaching. Now, when combined with Farringdon, the combination of FARRINGDON and HUANG fails to create a significant non-linear restorative force, namely, a force that grows in strength only when the switch closes the contact or is about to close the contact. The combination of FARRINGDON and HUANG teaches away from Applicant's compressible material as part of the contact itself and, thus, an integral part of the electrical circuit instead of merely being a part of the mechanical means of separating the contacts. Accordingly, Farringdon-Huang fails to provide a switch that is operative, which, in addition, lacks the inventive features taught by the Applicants.

Finally, the Office Action combines MIKHEEVA's teaching to the previously mentioned pair of references. The office Action fails to provide any explanation why MIKHEEVA is mentioned altogether. Applicants surmise that the Office action probably takes it for granted that a greater force is needed to free contacts that stick. If this were the case, then Applicants will argue that their teaching achieves this force in a specific way that is unique and which is not taught nor suggested by MIKHEEVA independently, nor by MIKEEVA in combination with FARRINGDON and HUANG.

To conclude, HUANG describes a deformable beam allowing two contacts to close a switch. Applicants have already referred to this teaching as prior art. FARRINGDON adds a means of fabricating a switch of the same concept as HUANG, but in a different way, i.e., a way compatible with clothing manufacture which is totally different and is not transportable to a MEM switch. FARRINGDON uses a compressible element as a restorative force for the contacts. This force is only gradually non-linear. It is not weak for most of the switch deflection, becoming stronger only when contact is imminent (and

thus does not allow for a low-voltage actuation of the switch via a third electrical contact). More fundamentally, the compressible element in FARRINGDON is purely mechanical.

In contrast, Applicants:

(a) move the compressible element onto the contact itself, becoming part of the electrically <u>conductive</u> (by definition) switch contact; and

(b) provide for a very non-linear restorative force as a result, allowing contact sticking to be overcome without simultaneously requiring a large voltage to actuate the switch. Accordingly, if for sake of arguments, one were to combine the teachings of FARRINGDON to HUANG and to MIKHEEVA, the resultant combination would fail totally to render claims 1-6 and 8-14 unpatentable.

Finally, the rejection states that it would be obvious to combine the teachings of HUANG to FARRINGDON and MIKHEEVA. This assertion should be challenged. The rejection fails to support this assertion with any other reason other than the implied reason that it would be obvious after reading the subject application. However, such an insight construction is clearly not permitted.

Thus, Applicants believe that they have overcome the rejection of Claims 1-6, and 8-14 under 35 U.S.C. 103(a) and respectfully request that the stated rejection of the above claims based thereon be reconsidered and withdrawn.

In view of the foregoing arguments, it is respectfully requested that all the rejections stated to this applications be reconsidered and withdrawn and that the Examiner pass all the pending claims to issue.

Should the Examiner have any suggestions pertinent to the allowance of this application, the Examiner is encouraged to contact Applicant's undersigned representative.

Respectfully submitted,
DAVID E. GREENBERG

By: [signature]
H. Daniel Schnurmann, Agent
Registration No. 35,791
Tel. No. (845) 894-2481

Appendix Attached – Except from Encyclopedic Dictionary of Electronics and Nuclear Engineering, page 423.